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Literate thought[1][2]

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Beliefs about the relationship between literacy and thought have a long, indeed a venerable history. Beginning in the 18th Century, in the period known as the Enlightenment, the assumption that an equation could be made between literacy, civilization and rationality. Writers such as John Stuart Mill and Thomas Jefferson claimed that the ability to read and write was not only important to personal fulfillment but also critical to the existence of an informed citizenry and a responsible government.

But what began as a reasonable assumption, has, in the course of two centuries, picked up sufficient momentum to be considered, in our time, the "myth" of literacy. I refer to it as a myth because it is no longer a belief subject to reflection and argument but an assumption held unreflectively. It is the assumption that directly links illiteracy with poverty, malnutrition and unemployment as well as other social ills, that makes us think of illiteracy as if it were some degrading social disease, of illiterates as second class citizens, and of education as a means of eliminating the "scourge" of illiteracy. (Olson, 1974).

In the past two decades that assumption has come under criticism, in part because of a new understanding of, not literacy, but orality, the study of the structure and social uses of oral as opposed to written language. This new understanding has let us recognize the

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myth of literacy as a myth; a belief not defensible on intellectual grounds. Hence, the relation between literacy and thought needs to be reexamined and reconstructed.

The beginnings of that reconstruction, as mentioned, are recent. Over the past 25 years the myth of literacy, the set of assumptions linking literacy, civilization and rationality, has been replaced by, what we may refer to as, the literacy hypothesis. The literacy hypothesis poses the question as to which, if any, features of modernity including forms of social organization and forms of technical and scientific discourse and the forms of thought that are tied to them, are related to the development of modern forms of expression and communication.

The literacy hypothesis has a number of intellectual roots. Parry (1971) and his student Lord (1960) were the first to provide compelling evidence that the Homeric tradition was an "oral tradition" and thus to show that a complex social organization and a sophisticated literature could be built up in a society completely lacking a technology for writing. Havelock (1963) took the argument one step further by showing how the classical Greek tradition grew out of the Homeric oral one. He argued that the transformation was not one of a movement from a "primitive" to a complex society but rather one of inventing new forms of thought and expression to deal with a new technology of communication, namely, the invention of alphabetic literacy. Goody and Watt (1963) and McLuhan (1962) and Ong (1982) also contributed importantly to the development of the argument that while literacy cannot be identified with progress, it does impart a distinctive "bias" to communication, social organization and to modern modes of thought.

Most of the arguments mentioned above are historical arguments. The cases they make rest upon the use of evidence of historical changes in language (Havelock, 1976; Ong, 1982), change in social institutions (Innis, 1951), changes in practices of interpretation (Stock, 1983), and changes in procedures for accumulating and storing information (Eisenstein, 1979). The question of concern here is whether or not the history of the

evolution of a literate culture can be used to explain anything about contemporary modes of thought. That it can, is the psychological "literacy hypothesis" of interest here.

It is worth acknowledging that the whole notion of a "mode of thought" is under attack in some cognitive circles. Scribner and Cole (1984) found that the roles of literacy tended to be more particular and specialized than usually expected. Yet they did report that schooling appeared to have a rather general and pervasive effect by defining a particular "genre" of tasks which were school-like. Consequently, it is not certain that literacy plays a role in cognition that is sufficiently general that it can be well-represented as a mode of thought.

In order to alert you to the kinds of developments which we may seek psychological evidence for, it may be of use to describe in more detail the kinds of conceptual changes that the historical and anthropological literatures have provided.

Consider the development of modern forms of "prediction" in contrast to the ancient art of "foretelling". It is a difference between the oracles which made up an important part of several oral traditions and the sorts of predictions which enabled a Columbus to sail off in a westerly direction in full confidence that he would arrive in the Orient, a destination previously reached only by travelling in an easterly direction.

Precisely how the oracles "worked" is a complex issue. But central to their effectiveness was a naive view of interpretation. Consider Shakespeare"s *Macbeth* in which the oracular witches promised, among other things, that Macbeth was secure until Birnam Wood came to Dunsinane. The distinctive feature of such oracular pronouncements was their ambiguity; the oracle could be "fulfilled" in a large number of ways and the hearers tended to take any such fulfillment as what had actually been intended by the speaker. Put simply, there was no systematic distinction between what the oracle said and the interpretation assigned by the listener; there was no clear distinction between a "text" and "interpretation". Oracles fell into disuse with the rise of literacy because, I suggest, literacy encourages an awareness of that distinction. If the interpretation could

not be ascribed to the oracles, but rather to the mind of the hearer-interpreter, the oracles lost their illusion of power. The horoscope is, of course, a modern day version of the oracles which we still read with a tingle of the possibility of prescience. But careful reading lets us see their enormous openness to interpretation; the texts, we now realize, are written to be ambiguous. Writing, by preserving the words but not their meanings, invites the distinction between a text and its interpretations.

A similar point was made regarding witchcraft and oracles among the Azande by Evans-Pritchard (1937). The oracle may be something as simple as the entrails of a chicken. In reading the oracular pronouncements of chicken guts, it is, of course, impossible to distinguish what the text says from its interpretation; there is a conflation of the text and its interpretation. Evans-Pritchard commented on the distinctive property of interpretation among the Azande, noting that anything a suspected witch may say would be "interpreted in a different sense from the one the speaker intended to give his words" (p. 133). These interpretations were attributed directly to the speaker and used to prove his guilt. That is, the interpretations are not distinguished from the intentions of the speaker or from his utterance. Rather, any interpretation made up by a listener was ascribed to the speaker; any interpretation constructed by the interpreter was ascribed to the oracle. The Azande interpret utterances, of course, they simply do not base their notions of understanding on the literate notions of a fixed text which is distinguished from the possible interpretations or misinterpretations constructed by the listener. When they arrive at an interpretation, they are convinced that the utterance could not be interpreted in any other way. As we shall see, this property is shared by pre-literate children in Western societies.

In a literate tradition, on the other hand, the notion of a fixed text is a commonplace. Exactly what is "fixed" in a text continues to be a hotly contested question as we shall see presently. For our present purposes we may say that the part of an utterance fixed by writing becomes a text. That text can then be the subject of commentary and of bodies of interpretation. In an oral society there are also ways of "fixing" texts, fixed

bodies of ritual and poetry, which are also subject to interpretation and understanding. But literacy provides a readily exploited means for splitting the text from its interpretations and permitting interpretations to be seen, for the first time, as interpretations.

Once texts are distinguished from interpretations, that distinction could be used for other literate purposes, writing up the lives of saints in such a way as to distinguish the facts from the fancy or in presenting evidence in law courts in such a way as to distinguish the facts from conjecture, hear-say and other subjective construals or interpretations. The distinction could also be used in science to distinguish "objective" science of astronomy from the "interpretive" science of astrology or the objective science of chemistry from the interpretive science of alchemy. Predictions could then be made simply on the basis of the laws or rules of those objective sciences without concern for the beliefs or intentions of the one making the predictions. And thus the predictions I referred to earlier, came to be distinguished from foretellings with the former being taken as objective and the latter as subjective.

But can these historical arguments be turned into a psychological hypothesis? The historical transformations I have discussed took in the order of a millennium to transpire. Does anything analogous occur in the decade or so involved in a child's becoming literate? Three hypotheses have been advanced to connect their historical changes with psychological changes.

The McLuhan hypothesis was that writing and particular printing, led to the substitution of the eye for the ear. The modality was taken to be central as the eye is more useful for the spatialization of knowledge characteristic of modern forms of thought. But that theory at least appears to be threatened by the existence of so-called "dyslexic" children, children who think perfectly well, that is to say, in a way not distinguishable from reading children on IQ tests, who nonetheless cannot read. If they are non-readers, and reading is what is responsible for visual-spatial forms of thought,

such children ought not to exist. They do, therefore, the modality explanation cannot be decisive.

The medium of written language has also been advanced as critical to this development. As many writers have pointed out, writing is a deliberate and conscious process which allows for advancing and taking back thoughts and thus for the construction of explicit, logical prose. Ong (1982) and Olson (1977) have advanced this line of argument. Havelock (1963) and Goody and Watt (1963) argued that not just writing was critical but writing with an alphabet, an alphabet being distinctive in that it permitted a clear distinction between decoding and interpreting. Again, however, the medium may be less critical than it at first appears to be. One can be almost as deliberate in speaking as in writing and lectures, although oral, may be as formal and prosaic as written papers (Chafe, 1985; Tannen, 1985). In fact Biber (1986) has recently shown that if samples of oral and written texts are analyzed in terms of such formal features as complexity of words or sentences and the like, three factors emerge, namely, complexity, involvement and formality, but none of them are tied directly to the written as opposed to the oral medium.

A third hypothesis linking literacy with thought may be characterized as the skill hypothesis. This hypothesis, which meets the objections raised against the preceding one, is as follows: If you learn to read and write, the habits and skills of reading and writing generalize, so that the skilled reader can do in speech what he had learned to do in writing. This, essentially Vygotskiian, hypothesis while of some obvious value, is also vulnerable to any evidence indicating that someone can be literate without, in fact, being a skilled reader. An interesting case of the independence of literacy from skilled reading comes from Stock's discussion of "textual communities" which were not uncommon in the later Middle Ages, communities which were often considered heretical. In such a textual community there may be only one person who could actually read or write and in some cases, there may actually be no text present, it having been lost or stored elsewhere. But while there may be only one person who could read, the whole

community was oriented around that text and its preferred interpretation and in that sense, the whole community was literate.

This form of literacy independent of the actual skill of reading and writing, Illich (1987) has characterized as "lay literacy." Such literacy may be largely independent of the actual scribal skills of reading and writing. To be lay literate is to know that texts exist, that the can be consulted and re-consulted, that their meaning remains invariant, that they have to be interpreted correctly, and that they have power and authority which transcends the person who is actually reading or pronouncing them.

So the notion of lay literacy belies the skills hypothesis. It appears that one can be quite literate without possessing the skills of reading and writing. How can that be? And what does that say about how literacy influences thought? It seems we must start over.

Conditions for the development of literacy

Literacy involved a series of linguistic, cognitive and social changes involving, at least, four factors.

First, there has to be some device for "fixing" and accumulating texts. Texts can be fixed through writing but they can also be fixed through oral means. The Vedic tradition is one in which texts are fixed by means of elaborate mnemonic schemes which keep them as invariant as writing does. Yet writing is an easily expandable means for fixing texts that permits the radical growth and accumulation of those texts. Conversely, the Vai, studied by Scribner and Cole (1981) possessed a script for forming texts but, as those texts were used primarily for records and friendly letters, they did not contribute to the growth of an accumulative archival tradition. Thus, literacy appears to require both the formation and accumulation of texts.

Second, there must be institutions for using texts. As long as texts are not important to religious traditions, to the legal institutions, for preserving contracts and agreements, as evidence at trials, as bearing the word of God, or for collecting scientific facts, they will have little cognitive significance. Hence, the growth of literacy requires some institutions for using texts: the church, the court, the government, and the academy.

Third, there must be institutions for inducting learners into those institutions. These institutions include the family, the church but primarily the school. The school trains children not only into the roles of the experts who maintain those institutions but more importantly, and more generally, they train the majority to use and to trust those institutions, to be "lay literates."

And fourth, the one of most relevance to our concern with literacy and thought, there must be the evolution of a metalanguage and a mental language, for talking and thinking about those accumulated texts. In talking about, interpreting and using those texts a conceptual metalanguage develops. And it is in learning to talk about text, I shall argue, that children acquire those concepts that are distinctive of literate thought.

Pattanyak (in press) has pointed out that the same four features, may in different ways to used to characterize an oral culture. In oral societies, too, there are texts fixed through memorization, there are institutions such as ritual and oratorical contexts in which those tests are used, there are procedures for inculcating members into the use of those "texts," and there are ways for talking about, explaining and referring to those texts.

Of course, the texts, contexts, uses, and discourse about such "oral" texts help to define quite different societies that those defined by the archival uses of texts that evolved in the West. The primary differences, I suggest, show up in the fourth of our factors, the evolution of a language for talking about, thinking about, interpreting, paraphrasing and otherwise characterizing texts. To this we now turn.

Talking about text

Here, I believe, we do find the common ground between the historical implications of literacy and the developmental implications of literacy. A literate culture preserves and uses texts and in doing so invents procedures, marked in a metalanguage, for interpreting those texts. Children, primarily in school, learn these processes and this metalanguage for talking about and interpreting texts. Those distinctions are critical to literate competence.

Some ways of talking about text are presumably intrinsic to any language, direct quotation perhaps being the most fundamental. Others are certainly common and well-known. "When he said x, he really meant y", "What does 'old-fashioned' mean?" "It is written but I say onto you" are all ways of talking about text. In some cases the text is fixed by direct quotation, sometime by writing, sometimes by consulting a written document. But the more that written documents are used, the more elaborate become the distinctions for taking about and interpreting and applying those texts to new situations. Correspondingly, the more one learns of these ways of talking and thinking about text, the more elaborate the devices for talking and thinking about thoughts and the more literate becomes one's mode of thought.

This hypothesis linking literacy with thought avoids the objections raised against the hypotheses discussed above. One does not need to be a reader, indeed to have ever seen a written text, to learn to make these distinctions because they are marked in the "literate" oral language. Moreover, the distinctions apply just as readily to speech as to writing; one can look for the intention and possible interpretations of an utterance almost as readily as one can look for alternative interpretations of a legal document. This is so because these distinctions are conceptual distinctions. Indeed, they can be applied not only to speech and writing but to anything that one may wish to treat as a text, as, for example, Bacon and his contemporaries treated nature. Nature was one of God's great books, the reading of which required the application of the literate distinction between reading and interpreting, the other great book, of course, being Scripture. I shall return to this point.

That the acquisition of these distinctions is important to the development of literate thought may be seen from a series of experiments that my colleague Nancy Torrance and I have conducted over the past few years on children's understanding of what we refer to as the "say-mean" distinction. These experiments present children with a story in which a particular utterance is treated as a text and children are asked about the meaning and possible interpretations of that utterance. In these stories the context

makes a particular interpretation plausible but the character in the story hearing that utterance in a different context misinterprets the utterance. Children are asked both what was *said* and what was *meant*. The interesting finding is that children under 5 or 6 years of age give the same answers to the two questions, those of 7 or 8 begin to distinguish them and to justify their answers by such things as "He thought she meant...", "She should have said..." and the like, indicating that they understood the difference between an expression (what was said) and an intention (what was meant), and the very possibility of misinterpretation.

Another fact occurs in these studies that is of interest here. When they are 7 or 8 years old, the begin to appeal to the text. They begin to ask to look back at the text to determine what the correct answer should be. The begin to treat the text as authoritative, as something which can be consulted and re-consulted to determine the correct answer. Indeed, if they make a warranted inference in reading a text, they are quite sure that the text actually stated it.

But the basic distinction between what was said and what was meant by it is only the beginning. It underlies all further distinctions between texts, intentions and interpretations. Havelock (1982) suggested that even this beginning was tied to the rise of Greek literacy, that writing is what led to the distinction between a word and an idea, for example. And it is possible that the say/mean distinction is also related to that. But the fact that this distinction is linguistically ancient and the fact that it is acquired so readily by children suggests that it is a relatively simple one.

The more elaborate set of terms for referring to texts and for the ideas expressed in those texts, that is, terms for referring to what was actually said, the way that that saying was actually intended, the attitude of the speaker to the speech being reported, alternative ways that the reported speech could be taken and the like is both more complex, and, it appear, more recent. It is to that much more elaborated set of concepts that I now turn.

Speech act and mental state terms

Let us review. Any utterance calls for an interpretation by the listener or reader. The preferred interpretation can be seen as the actual meaning intended by the speaker. Other meanings may be seen as implications, as assumptions, as presuppositions, as metaphorical or allegorical interpretations and so on. In ordinary discourse many of these types or levels of meaning may be exploited, as we saw in the case of the Azande who read an unintended meaning as a betrayal of the speaker. What literacy contributes to the picture is an explicit analysis of these types, forms and levels of meaning and intention. These types are worked out largely, it appears, in dealing with significant texts, texts that are sufficiently important that it matters what, precisely, they mean. Conversely, when it seriously matters what the texts mean, it is worth systematizing, standardizing and explicating the intended meanings in a way that minimizes ambiguity and the possibility of misinterpretation.

Systematic devices for stating meaning explicitly and unambiguously and for recovering the precise meanings of texts are represented by the set of concepts expressed by speech act and mental state terms. My colleague Janet Astington and I have selected a set of these terms, examined their origins and more recently begun to study the acquisition of these terms by school children. A partial listing of speech act and mental terms, including both the common, "vernacular" terms of Indo-European origins and the more specialized "Latinate" or "literate standard" terms is shown in Table 1.

Insert Table 1 about here

First consider in more detail the origins of the terms shown on the right of Table 1 as these are the ones that betray their connection with literacy. The terms, in this case, all verbs include: assert, assume, claim, concede, conclude, confirm, contradict, criticize,

declare, define, deny, discover, doubt, explain, hypothesize, imply, predict and the three that I'll discuss more fully, infer, interpret and observe. This is not an ad hoc list; it is a set of terms for referring to what someone has said or thought. These terms are all borrowed from Latin into English and the first preserved use of these terms as English expressions was in the late Middle Ages and early Renaissance, roughly the 12th to the 16th Centuries. They were borrowed into English as English became the language of theology, law, government and philosophy. Prior to this time, the language of religion and government was Latin; during this time these functions were transferred to English. In the course of the transfer, the specialized terms of a literate society were also transferred (Traugott, 1987). Thus, these terms are not terms of the vernacular language, they are the specialized terms of a literate, bureaucratic society. Yet these are not esoteric terms. They are the sorts of terms that are essential for any sustained or systematic argument, or conversation for that matter.

These Latinate terms, part of what we may refer to as the "literate standard language" (Olson & Astington, 1989), contrast with the vernacular speech act and mental state verbs including say, think, mean, know, believe and understand shown on the left of Table 1. As mentioned these terms are of ancient ancestry and or common parlance. You will note that it is these terms which the say/mean studies described above explore. Children acquire these terms when they are only two or three years old, but as the studies above indicate, children, at least children in a Western literate culture, cope with the complexities of their semantics only when they are 5 or 6 years of age.

Children's acquisition of the more complex terms for referring to more elaborated forms of assertions and intentions occurs much later. Astington and I prepared a set of stories to test children's comprehension of these terms. Two typical stories follow.

> Jane and Kate are arguing about which is the best place to eat. Jane thinks Harvey's is best but Kate thinks McDonald's is. Kate says that McDonald's is nearer, but Jane still thinks Harvey's is the best one to go to because the burgers taste better. *She says to Kate, "It's true McDonald's is nearer,* but I'd rather go to Harvey's."

A. Jane *contradicts* that McDonald's is nearer.
B. Jane *doubts* that McDonald's is nearer.
C. Jane *suggests* that McDonald's is nearer.
D. Jane *concedes* that McDonald's is nearer.

Jason is very good at making all sorts of models. One day Jason's brother makes a model aeroplane but it won't fly properly. Jason thinks that it will fly if he puts a counterweight in the tail, so he goes to find a weight to try out his idea.

A. Jason *remembers* that it will fly if...
B. Jason *discovers* that it will fly if...
C. Jason *hypothesizes* that it will fly if...
D. Jason *explains* that it will fly if...

All of the verbs studied are elaborated forms of the verbs think and say. Thus, in place of the verb say, the subject must choose between the verbs contradict, doubt, claim or concede. For another item the subject must choose a replacement for the verb think from among the set remembers, hypothesizes, infers and observes.

Our test consists of a dozen of such items, each involving four complex verbs, 32 complex speech act and mental state terms in all.

Children's performance on such items indicates that when they are in Grade 7, that is approximately 13 years of age, only about 30% of these verbs are chosen correctly. By the time they are in Grade 13, that is about 19 years of age, about 80% of these items are answered correctly.

To provide a more concrete example, the item requiring children to choose an answer regarding the color of litmus paper dipped in acid tended to elicit the term hypothesize, presumably, because of the scientific content of the item whereas, in fact, the correct answer is remember because the protagonist had just been told the correct answer.

Obviously, these are complex terms and it is no surprise that children acquire them during their high school years. But their late acquisition adds support to the line of argument advanced herein. First, these terms are not part of the vernacular but of the "literate standard language": they are terms that are not, ordinarily, picked up in the course of ordinary discourse but rather "learned" either through schooling, reading, or, for some children, in the course of talk with highly literate parents.

Second, these terms are not ornamental *bon mots*. They do not merely add the appearance of literate sophistication to the speaker; they are conceptual distinctions critical for systematic thought and discourse. Although systematic evidence is not yet available, I believe that these concepts are the tools for systematic thought. All thought, even loose thought and loose talk, involve making assumptions, assertions, conjectures and inferences. Systematic thought, literate thought, involves recognizing assumptions as assumptions, recognizing assertions as assertions, conjectures as conjectures, and inferences as inferences. To recognize an inference as an inference requires that you have a concept of an inference. And a sufficient condition for having the concept is knowing the meaning of the term infer. Tests of critical thinking attempt to assess, somewhat obliquely, just these concepts.

But these tools for thinking, these conceptual distinctions so important for systematic thought, are precisely the tools that are involved in the analysis of and reflection on the meanings of texts. My final point will elaborate this relationship.

Interpreting texts and interpreting nature

The concepts that have been evolved for the interpretation of texts, concepts like text and interpretation, once elaborated can be borrowed and applied to other domains, in this case, nature. Hermeneutics implies an epistemology. This close relationship between "reading the book of Scripture" and "reading the book of Nature" is seen particularly clearly in the relationship between the Reformation and the rise of early Modern science. Bacon subtitled his *Novum Organum*, "The interpretation of nature" and he spoke of the parallels between the book of God's *word* and the book of God's *work*.

It has been common to think of this as nothing more that a loose metaphor. My suggestion is that it is an explicit statement of the epistemology of the 17th Century. On the Reformation side, the model of interpretation was "solo scriptura", the scriptures only, that is, that the meaning of scripture depended, not on the dogmas of the church but on a "deeper reading" of the text. The critical hermeneutical distinction was

between what was given in the scripture and the interpretations added by the Church. To vastly oversimplify a fascinating topic. Luther's commitment was to what the Scripture "said", not how it could be "interpreted". Interpretation came to be seen as equivalent to corruptions of the original or the given, as accretions and extrapolations added by the reader but not given by the text. I summarize this perspective as drawing a strong distinction between the "given" and the "interpretation" while focusing upon the former.

The same distinction was central to early Modern science. As in so many of these cases. Bacon, stated the view most clearly: "God forbid that we take a dream of the imagination for a pattern in the world". The dream of the imagination, was the set of interpretations that could be seen in the world but did not really exist in the world. The patterns in the world were the facts given by direct observation. "Science consists", Bacon wrote, "of the statement of observed facts". William Harvey, Robert Boyle, Robert Hooke as well as the historian of the Royal Society, Thomas Sprat, echoed just that view. That view, to repeat, was to draw and strong distinction between the given, the text, and the interpretations. Applied to Scripture, it yielded Protestantism; applied to Nature, it yielded early Modern science. Text and interpretation are translated into the epistemological distinction between direct observation of the given facts and the inferences and interpretations which could be erected thereon, Bacon's "dream of the imagination."

I should add as a caveat that too strong an ontological distinction between what is in a text and what is an interpretation, like too strong a distinction between an observation and an inference yields a kind of fundamentalism, which while quite common, is no longer considered valid. Sellars (1963) for example, talks of the "myth of the given"; Fish (1980) argues that there is no given text. Kuhn (1962) and others talk of the theory-ladenness of observations. In order to up-date the view I have presented, it is necessary to relativize the categories, but, not, I suggest, to abandon them. There is no systematic argument without an observation/inference distinction, there is no theoretical

science without a fact/theory distinction, there is no interpretation without a text/interpretation distinction. What must be granted is that facts are relative to a theory, that what is taken as an observation is relative to the inferences one seeks to draw and so on. In general, what is taken as given, depends upon what inferences or interpretations one is seeking to construct. This concession would suitably relativize both hermeneutics and epistemology (Olson, 1986).

And third, these findings suggest one of the ways that literacy contributes to thought. It does so indirectly. Perhaps some advantage for thinking comes from the use of the visual-spatial modality implicated in writing. That may, in some yet unknown way help to linearize thinking. Perhaps some advantage also results from the use of medium of writing over the medium of speaking. It is widely acknowledged that arguments are more easily evaluated when then are written than when they are spoken and it is widely experienced by writers that what seemed like a good idea when casually discussed falls to pieces when one tries to lay it out in writing. And there may be some way by which skilled reading and writing create an awareness of language which then transfers to our perception of spoken language as the skills hypothesis discussed earlier suggests.

But the primary way that literacy contributes to thinking, I have argued, comes in two stages, first the evolution of a metalanguage for talking about text, for forming text, for developing commentaries, for quoting and paraphrasing and otherwise characterizing the talk, writing and thought of others. This evolution occurs primarily in somewhat specialized, even technical domains such as science, law, philosophy and government. The second stage involves the acquisition of this specialized "standard literate language" primarily in the course of schooling especially during the later school years. It is the acquisition of the concepts expressed by these terms that allows assumptions to be recognized as assumptions and inferences as inferences and that gives to thought those special properties that we associate with literacy.

But we must not allow our new understanding of literacy to eclipse the intricacy of oral language and oral tradition. Literacy is a resource that is particularly appropriate to some forms of discourse, to solving a certain range of problems and to functioning in contemporary social institutions. But literacy does not exhaust the range of valued forms of discourse and valued forms of rationality. The problem facing us is that of understanding orality and literacy so that we are in a better position to educate children and adults to use the resources of both.

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Table 1

Date Of Earliest Known Occurrence In English

Of Some Speech Act And Mental State Verbs

Germanic		Latinate		
believe	OE	assert	1604	
know	OE	assume	1436	
mean	OE	claim	ME	
say	OE	concede	1632	
tell	OE	conclude	ME	
think	OE	confirm	ME	
understand	early ME	contradict	1570	
		criticize	1649	
		declare	ME	
		define	ME	
		deny	ME	
		discover	ME	
		doubt	ME	
		explain	1513	
		hypothesize	1596	(Greek)
		imply	ME	
		infer	1526	
		interpret	ME	
		observe	late ME	
		predict	1546	
		prove	ME	
		remember	ME	
		suggest	1526	

OE = Old English (before 1150)
ME = Middle English (1150-1350)
(late ME 1350-1450)

Source: The Oxford English Dictionary

Taken from Olson, D. R., & Astington, J. W. (1986). *Talking about text: How literacy contributes to thought.* Paper presented at the Boston University Conference on Language Development.